

## **REMARKS**

This Paper is in response to the final Office action (Paper No. 20090426) mailed on 1 May 2009 and the Advisory action (Paper No. 20090820) mailed on 24 August 2009. Reexamination and reconsideration are respectfully requested.

### **Listing of The Claims**

Pursuant to 37 CFR §121(c), the claim listing, including the text of the claims, will serve to replace all prior versions of the claims, in the application.

### **Status of The Claims**

Claims 1-10 are pending in this application.

### **Amendment of The Claims**

No claim is amended in this Paper.

### **Issues Raised by the Advisory Action (Paper No. 20090820)**

**1(a)** Regarding Applicant's comment presented on pages 9-10 in the Response filed on 3 August 2009, the Examiner first contended that the portion indicated on pages 9-10 of the Response filed on 3 August 2009 is not used as a rejection for any claim limitation. Specifically, on page 2, item 1 of the Advisory Action (Paper No. 20090820), the Examiner stated:

“The indicated portion is not used as a rejection for any claim limitation. (Remarks Pages 9-10). Applicant is indicating the motivation for the 103 combination.”

The Examiner's statement is unusual. A review of the administrative record shows that the

Examiner's statement is incorrect, and as shown on pages 5-6 of Paper No. 20090426, the Examiner **did** use the indicated portion, i.e.,

“an extremely flexible, scaleable, and adaptive architecture for different hub configurations and able to support a variety of present and future protocols”,

in a rejection for claim 1's limitation “*with each routing protocol processing unit processing data in accordance with a respectively corresponding routing protocol*”.

(b) Regarding Applicant's comment presented on pages 9-10 in the Response filed on 3 August 2009, the Examiner further contended that achieved advantage is a valid motivation for the combination of prior art references, by stating that:

“Achieved advantage is a valid motivation for the combination of prior art references. The combination of each referenced prior art combination states a motivation for the combination, which translates to an achieved advantage for the combination.”

Applicant respectfully traverses because (i) Dobbins '649 does not teach Applicant's claim 1's “*each routing protocol processing unit processing data in accordance with a respectively corresponding routing protocol*” as contended by the Examiner, (ii) none of Civanlar '963 and Dobbins '649 states “*a motivation for the combination*” or “*an achieved advantage for the combination*” as contended by the Examiner, and (iii) the combination of Civanlar '963 and Dobbins '649 does not teach any technique to realize “*an extremely flexible, scaleable, and adaptive architecture for different hub configurations and able to support a variety of present and future protocols*” by combining the teachings of Civanlar '963 and Dobbins

‘649. Consequently, no evidence of record suggests the Examiner’s “achieved advantage”.

**Firstly**, Dobbins ‘649 merely teaches that each interface has a forwarding engine which knows how to receive and transmit packets on its own interface,<sup>1</sup> and that a Network Interface Table 224<sup>2</sup> provides protocol-specific configuration information for each attached network interface.<sup>2</sup> But, Dobbins ‘649 fails to disclose whether this network interface has a plurality of routing protocol processing units, or whether this network interface is capable of processing data corresponding to a plurality of different routing protocols. Therefore, Dobbins ‘649 fails to teach that “a plurality of routing protocol processing units each processing data in accordance with a respectively corresponding routing protocol ”.

**Secondly**, Dobbins ‘649's column 1, lines 54-58, as cited by the Examiner, reads:

“To be able to implement routing services in these distributed hub and network devices, the architecture must be extremely flexible, scaleable, and adaptive to different hub configurations and chassis, and be able to support a variety of present and future protocols.”

In point of fact, this passage of Dobbins ‘649 is nothing more than a simple suggestion of a **desirability** of a network interconnecting apparatus, which is able to provide “*an extremely flexible, scaleable, and adaptive architecture for different hub configurations and able to support a variety of present and future protocols*”. The combination of Civanlar ‘963 and

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<sup>1</sup> Dobbins ‘649's column 7, lines 33-35 reads: “each interface 11, 14, 17 has a forwarding engine 12, 15, 18 sitting above it, and each forwarding engine knows how to receive and transmit packets on its own interface.”

<sup>2</sup> Dobbins ‘649's column 7, lines 33-35 reads Network Interface Table 224'--This object provides protocol-specific configuration information for each attached network interface.

Dobbins '649 is completely devoid of teaching or suggestion of applying Dobbins '649's teaching into Civanlar '963's circuit.

**Thirdly**, both of Paper No. 20090426 and Paper No. 20090820 fail to provide any evidence showing how to apply Dobbins '649's teaching into Civanlar '963's circuit, or how to realize “*an extremely flexible, scaleable, and adaptive architecture for different hub configurations and able to support a variety of present and future protocols*” by applying Dobbins '649's teaching into Civanlar '963's circuit.

No where in the administrative record of this prosecution has the Examiner introduced into evidence, facts that would support the gross deviation from the teachings of Civanlar '963 and Dobbins '649 that would be required by the Examiner's proposed combination. In short, the Examiner's conclusion is unsupported by all of the evidence of record except an impermissible hindsight reconstruction of the art in the light provided solely by Applicant's claims; such is the antithesis of obviousness.

Consequently, the rejection of claims 1 and 9 is unsupported by the administrative record, and is thus untenable. Its withdraw is respectfully urged.

2. On page 2 of Paper No. 20090820, the Examiner contended that:

“It appears that the claimed invention indicates that each routing node shares routing information with others of the routing nodes. Civanlar discloses that routing information is forwarded. This forwarding is equivalent to sharing the routing information between the other routers. The routing information is shared in real time.”

Applicant respectfully disagrees because lines 7-8 of claim 1 read:

“the switching module disposed to share in real time routing information collected by each of the routing nodes with others of the routing nodes”.

The major feature of this claim limitation is that the switching module shares routing information collected by each of the routing nodes with other routing nodes. As correctly realized by the Examiner, Civanlar ‘963 merely teaches that the routing information may be shared between routing nodes. But Civanlar ‘963's switching fabric 102 (identified by the Examiner as Applicant’s “switching module” does not share the routing information collected by each of the routing nodes with others of the routing nodes. Rather, as clearly disclosed in column 3, lines 8-10 of Civanlar ‘963, switching fabric 102 may simply be a bus interconnecting all of the line cards. Obviously, a bus can not share any routing information.

Moreover, the Examiner’s proposed modification of Civanlar ‘963 would impermissibly prevent Civanlar ‘963 from operating in its intended mode of operation.

Therefore, Civanlar ‘963 fails to teach or suggest Applicant’s claim 1's “the switching module disposed to share in real time routing information collected by each of the routing nodes with others of the routing nodes”.

Consequently, the rejection of claim 1 is in error and should be withdrawn.

3. On page 2 of Paper No. 20090820, the Examiner stated:

“There is no disclosure in the claimed invention for the "more enhanced embodiment" such as "multiplexors and/or demultiplexors" or "a reconfigurable partial and/or full mesh or

direct or indirect connections between various intelligent router ports 103 and/or network of switches ... " argued by the Applicant. (see Remarks Page 11)".

Applicant respectfully clarifies that the "*multiplexors and/or demultiplexors*" and "*reconfigurable partial and/or full mesh or direct or indirect connections between various intelligent router ports 103 and/or network of switches*" are mentioned in Civanlar '963's column 3, lines 10-15 regarding switching fabric 102 (identified by the Examiner as Applicant's "switching module"),<sup>3</sup> rather than in Applicant's pending claims.

Civanlar '963 discloses nothing more than a switching fabric 102 illustrates in block diagram of Figure 1. Civanlar '963 fails to disclose any detail regarding the "more enhanced embodiment" of "*multiplexors and/or demultiplexors*" and "*reconfigurable partial and/or full mesh or direct or indirect connections between various intelligent router ports 103 and/or network of switches*" as suggested by Civanlar '963 in column 3, lines 8-15. Nor does Civanlar '963 teach or suggest that switching fabric 102 (identified by the Examiner as Applicant's "switching module") may have "*a plurality of routing protocol processing units communicatively connected with the corresponding routing protocol processing units of each of the routing nodes*" as defined by Applicant's claim 1.

Therefore, the rejection of claims 1 and 9 is in error and should be withdrawn.

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<sup>3</sup> Civanlar '963's column 3, lines 8-15 reads: "In the simplest form, the switching fabric may simply be a bus interconnecting all of the line cards. In more advanced embodiments, the switching fabric 102 may include one or more **multiplexors and/or demultiplexors**. In still further embodiments, the switching fabric 102 may be a **reconfigurable partial and/or full mesh of direct or indirect connections between various intelligent router ports 103 and/or a network of switches** (including conventional crossbar switches)."

4. On page 2 of Paper No. 20090820, the Examiner stated:

“Civanlar does not does not [*sic.*] criticize, discredit, or otherwise discourage the sharing of routing information between routing nodes. Therefore, Civanlar does not teach away from the sharing of routing information between routing nodes. In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004)”.

Applicant agrees with the Examiner that Civanlar ‘963 does not criticize, discredit, or otherwise discourage the sharing of routing information between routing nodes.

But, Civanlar ‘963 teaches away from having a **central processor** for sharing routing information. As is correctly recognized by the Examiner in Paper No. 20090820, Civanlar ‘963 does not have a central processor, and the specification discloses a distributed architecture. Specifically, as disclosed in column 3, lines 10-27 of Civanlar ‘963, the switching fabric does not have a central processor, and each router port may maintain its own routing tables without the need for a central processor coordinating this activity.<sup>4</sup>

Although Civanlar ‘963 discloses that the forwarding engines forwards new routing table configuration data to every other router port, there is no disclosure that Civanlar ‘963's “switching fabric” (identified by the Examiner as Applicant’s “switching module”) shares the routing table configuration data.

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<sup>4</sup> Civanlar ‘963's column 3, lines 19-27 reads: “Accordingly, embodiments of the present invention do not require the switching fabric 102 nor the router 100 itself to have a central processor as is required in conventional routers. Instead, as will be discussed in more detail below, each intelligent router port 103 may operate autonomously and may be capable of generating and maintaining its own routing tables and/or forwarding data packets in accordance with the routing tables, without the need for a central processor coordinating this activity.”

Therefore, Civanlar '963 explicitly teaches away from having Applicant's "switching module sharing routing information of each routing node with other routing nodes".

Consequently, Applicant's claims 1 and 9 are not taught or suggested by the prior art.

5. In Paper No. 20090820, the Examiner correctly recognized that Civanlar '963 discloses "insertion of updating of new configuration or routing information into a routing table", and Venkatachary '184 discloses "searching a tree data structure of routing information".

But, there is no teaching in any one of Civanlar '963 and Venkatachary '184, or the combination thereof, regarding the following limitations of Applicant's pending claims:

*claim 2*, "detecting a position at which **an insertion node corresponding to the new routing information** is to be inserted into the aggregation tree";

*claim 2*, "determining presence and absence of an ancestor node of the insertion node **at or below a predetermined maximum aggregation level with respect to the insertion node**";

*claim 2*, "leaving a forwarding table un-updated ..., **when forwarding information corresponding to the ancestor node is in the forwarding table and both of the insertion node and the ancestor node have been generated from a common source area**";

*claim 2*, "in an absence of the ancestor node, **resetting the aggregation level** to a reset aggregation level not greater than the maximum aggregation level, and **inserting forwarding information corresponding to a delegation node** representative of the insertion node at the reset aggregation level in the forwarding table";



*claim 2*, “inserting forwarding information corresponding to the delegation node in the forwarding table when the source area of the routing information is a virtual area,”;

*claim 2*, “inserting forwarding information corresponding to the insertion node in the forwarding table when the source area of the routing information is a local area”;

*claim 3*, “before making said insertion of forwarding information, and when a delegation node is found to exist at the position of the insertion node while detecting a position at which an insertion node corresponding to the new routing information is to be inserted into the aggregation tree, deleting from the forwarding table forwarding information corresponding to the delegation node”;

*claim 4*, “before making said insertion of forwarding information, when a delegation node is found to exist at the position of the insertion node while detecting said position at which an insertion node corresponding to the new routing information is to be inserted into the aggregation tree, and when a left/right subtree of the delegation node exists, reinserting nodes of the left/right subtree, and deleting forwarding information corresponding to the delegation node from the forwarding table”;

*claim 5*, “when the ancestor node of the insertion node is found to exist at or below the maximum aggregation level while determining said presence and absence of the ancestor node, searching for a descendant node of the insertion node”;

*claim 5*, “when a descendant node of the insertion node is found to exist, resetting the aggregation level according to a difference between the prefixes of forwarding information corresponding to the insertion node and the descendant node”;

*claim 5*, “when no descendant nodes of the insertion node are found to exist, resetting the aggregation level

according to the **aggregation level of the ancestor node** of the insertion node”;

*claim 5*, “when the reset aggregation level is greater than zero, determining the source area of the inserted routing information, **inserting the forwarding information corresponding to the delegation node** in the forwarding table when the source area is a **virtual area**, and **inserting the forwarding information corresponding to the insertion node** in the forwarding table when the source area is a **local area**”;

*claim 6*, “setting a search level range whether the ancestor node of the insertion node exists within the search level range”;

*claim 6*, “when the ancestor node of the insertion node exists within the search level range, determining whether a **descendant node** of the deletion node representative of the insertion node **exists at the maximum aggregation level**”;

*claim 6*, “resetting the aggregation level according to a difference between the prefixes of the insertion and the descendant node of the delegation node **when the descendant node of the delegation node exists at the maximum aggregation level**”;

*claim 6*, “inserting the forwarding information corresponding to the delegation node of the insertion node **at the reset aggregation level** in the forwarding table”;

*claim 7*, “when routing information is to be deleted from a routing table, **detecting a deletion node corresponding to the routing information to be deleted** in the aggregation tree”;

*claim 7*, “searching for a descendant node of the deletion node **at a predetermined maximum aggregation level**”;

*claim 7*, “when a descendant node of the deletion node exists at an aggregation level not greater than a predetermined maximum aggregation level, **setting the descendant node as a new source node of a delegation node**”;

*claim 7*, “**when no descendant nodes exist for the deletion node** at an aggregation level not greater than a predetermined maximum aggregation level, **deleting the forwarding information corresponding to the deletion node from the forwarding table**”;

*claim 8*, “**when the deletion node is a source node that created a delegation node, changing forwarding information corresponding to the delegation node** in conformance with the forwarding information corresponding to the deletion node”;

*claim 10*, “**making a search of said aggregation tree within a maximum aggregation level to identify an ancestor node of said insertion node**”;

*claim 10*, “**forgoing updating of said forwarding table with forwarding information corresponding to said insertion node when said insertion node and said ancestor node were generated from the same source area and said search identifies said ancestor node**”;

*claim 10*, “**resetting said maximum aggregation level to a reset aggregation level not less than said maximum aggregation level when said search fails to identify said ancestor node and adding a delegation node representative of said insertion node at said reset aggregation level**”;

*claim 10*, “**making an identification of said source area of said new routing information**”;

*claim 10*, “**inserting said forwarding information corresponding to said delegation node when said identification establishes that said source area of said new routing information is a virtual area; and**

*claim 10*, “**inserting said forwarding information corresponding to said insertion node when said identification establishes that said source area of said new routing information is a local area**”.

Therefore, Applicant’s claims 2-8 and 10 are patentably distinguishable over the prior

art.

In view of the foregoing remarks, all claims are deemed to be allowable and this application is believed to be in condition to be passed to issue. If there are any questions, the examiner is asked to contact the applicant's attorney.

A fee of \$130.00 is incurred by filing a petition for one-month extension of time. Should there be a deficiency in payment, or should other fees be incurred, the Commissioner is authorized to charge Deposit Account No. 02-4943 of Applicant's undersigned attorney in the amount of such fees.

Respectfully submitted,

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